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A/Reissue

# REISSUE PATENT APPLICATION TRANSMITTAL

<b>Address to:</b>  <b>Assistant Commissioner for Patents Box Patent Application Washington, DC 20231</b>	<b>Attorney Docket No.</b>	WARR 0127 R
	<b>First Named Inventor</b>	David Morrow
	<b>Original Patent Number</b>	5,568,925
	<b>Original Patent Issue Date (Month/Day/Year)</b>	October 29, 1996
	<b>Express Mail Label No.</b>	EG152829060US

<b>APPLICATION FOR REISSUE OF:</b> (check applicable box)	<input checked="" type="checkbox"/> <b>Utility Patent</b>	<input type="checkbox"/> <b>Design Patent</b>	<input type="checkbox"/> <b>Plant Patent</b>
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APPLICATION ELEMENTS	ACCOMPANYING APPLICATION PARTS
1. <input checked="" type="checkbox"/> * Fee Transmittal Form (PTO/SB/56) (Submit an original, and a duplicate for fee processing)	7. <input type="checkbox"/> Transfer drawings from Patent File
2. <input checked="" type="checkbox"/> Specification and Claims (amended, if appropriate)	8. <input type="checkbox"/> Foreign Priority Claim (35 U.S.C. 119) (if applicable)
3. <input checked="" type="checkbox"/> Drawing(s) (proposed amendments, if appropriate)	9. <input type="checkbox"/> Information Disclosure Statement (IDS)/PTO-1449 <input type="checkbox"/> Copies of IDS Citations
4. <input checked="" type="checkbox"/> Reissue Oath / Declaration (original or copy) (37 C.F.R. § 1.175)(PTO/SB/51 or 52)	10. <input type="checkbox"/> English Translation of Reissue Oath/Declaration (if applicable)
5. Original U.S. Patent <input checked="" type="checkbox"/> Offer to Surrender Original Patent (37 C.F.R. § 1.178) (PTO/SB/53 or PTO/SB/54) or <input type="checkbox"/> Ribboned Original Patent Grant <input type="checkbox"/> Affidavit / Declaration of Loss (PTO/SB/55)	11. <input type="checkbox"/> * Small Entity Statement(s) <input checked="" type="checkbox"/> Statement filed in prior application, Status still proper and desired (PTO/SB/09-12)
6. Original U.S. Patent currently assigned? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If Yes, check applicable box(es)) <input checked="" type="checkbox"/> Written Consent of all Assignees (PTO/SB/53 or 54) <input checked="" type="checkbox"/> 37 C.F.R. § 3.73(b) Statement <input type="checkbox"/> Power of Attorney	12. <input checked="" type="checkbox"/> Preliminary Amendment
	13. <input checked="" type="checkbox"/> Return Receipt Postcard (MPEP 503) (Should be specifically itemized)
	14. <input type="checkbox"/> Other: .....

\* A new statement is required to be entitled to pay small entity fees, except where one has been filed in a prior application and is being relied upon.

<b>15. CORRESPONDENCE ADDRESS</b>					
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or <input type="checkbox"/> Correspondence address below					
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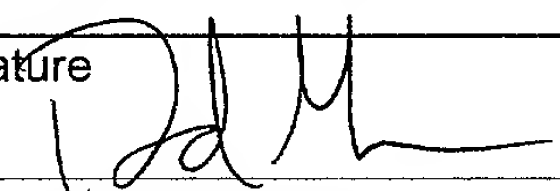
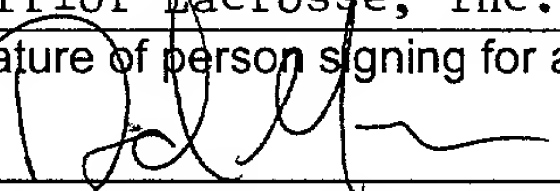
NAME (Print/Type)	Mark A. Cantor	Registration No. (Attorney/Agent)	30,614
Signature		Date	10-19-98

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<b>REISSUE APPLICATION DECLARATION BY THE ASSIGNEE</b>		Docket Number (Optional)  WARR 0127 R
<p>I hereby declare that:          My residence, post office address and citizenship are stated below next to my name.          I am authorized to act on behalf of the following company: <u>Warrior Lacrosse, Inc.</u>          and the title of my position with said company is: <u>President</u>          The entire title to the patent identified below is vested in said company.</p>		
Name of Patentee(s): <u>David Morrow; Philip Naumburg</u>		
Patent Number <u>5,568,925</u>	Date Patent Issued <u>October 29, 1996</u>	
Title of Invention <u>SCOPPED LACROSSE HEAD</u>		
<p>I believe said patentee(s) to be the original, first and sole or joint inventor(s) of the subject matter which is described and claimed in said patent, for which a reissue patent is sought on the invention entitled <u>SCOOPED LACROSSE HEAD</u>,          the specification of which</p> <p><input checked="" type="checkbox"/> is attached hereto. : and</p> <p><input checked="" type="checkbox"/> was filed on <u>July 27, 1998</u> as reissue application number <u>09 / 123,925</u>          and was amended on _____          (If applicable)</p>		
<p>I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.</p> <p>I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.</p> <p>I verily believe the original patent to be wholly or partly inoperative or invalid, for the reasons described below. (Check all boxes that apply.)</p> <p><input type="checkbox"/> by reason of a defective specification or drawing.</p> <p><input checked="" type="checkbox"/> by reason of the patentee claiming more or less than he had the right to claim in the patent.</p> <p><input checked="" type="checkbox"/> by reason of other errors.</p>		
<p>At least one error upon which reissue is based is described as follows:</p> <p>The application that resulted in U.S. Patent No. 5,568,925 inadvertently did not claim priority to Applicants' earlier filed co-pending design patent application. The present patent is entitled to the earlier filing date, under 35 U.S.C. Section 120, of its prior application, Serial No. 038,327 which was filed on May 3, 1995. The prior co-pending U.S. application is entitled "Lacrosse Head" and is directed to the same subject matter as described in the present application.</p> <p>The patentee of U.S. Patent No. 5,568,925 also claimed less than he had the right to claim in the patent.</p>		

(REISSUE APPLICATION DECLARATION BY THE ASSIGNEE, page 2)		Docket Number (Optional) WARR 0127 R			
<p>All errors corrected in this reissue application arose without any deceptive intention on the part of the applicant.</p> <p>I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">Name(s) Mark A. Cantor</td> <td style="width: 50%; border: none;">Registration Number 30,614</td> </tr> </table>				Name(s) Mark A. Cantor	Registration Number 30,614
Name(s) Mark A. Cantor	Registration Number 30,614				
<p>Correspondence Address: Direct all communications about the application to:</p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="display: flex; align-items: center;"> <input type="checkbox"/> Customer Number             <div style="border: 1px solid black; width: 200px; height: 30px; margin: 0 10px;"></div> <div style="font-size: 2em; margin: 0 10px;">→</div> <div style="border: 1px solid black; padding: 5px; text-align: center; width: 150px;">                 Place Customer Number Bar Code Label here             </div> </div> <div style="margin-top: 5px; text-align: center;">Type Customer Number here</div> </div> <p style="text-align: center; margin-top: 10px;">OR</p>					
<input checked="" type="checkbox"/> Firm or Individual Name	Brooks & Kushman				
Address	1000 Town Center				
Address	22nd Floor				
City	Southfield	State	MI		
Country	U.S.A.				
Telephone	248-358-4400	Fax	248-358-3351		
<p>I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this declaration is directed.</p>					
Full name of person signing (given name, family name) David Morrow					
Signature					
Date	10/16/98				
Residence	28454 Wellington				
Citizenship	U.S.A.				
Post Office Address Farmington Hills, MI 48334					

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<b>REISSUE APPLICATION BY THE INVENTOR, OFFER TO SURRENDER PATENT</b>		Docket Number (Optional)  WARR 0127 R
<p>This is part of the application for a reissue patent based on the original patent identified below.</p>		
Name of Patentee(s) David Morrow; Philip Naumburg		
Patent Number 5,568,925	Date Patent Issued October 29, 1996	
Title of Invention SCOOPED LACROSSE HEAD		
<p>I am the inventor of the original patent.</p> <p>I offer to surrender the original patent.</p> <p>1. <input checked="" type="checkbox"/> Filed herein is a certificate under 37 CFR 3.73(b).</p> <p>2. <input type="checkbox"/> Ownership of the patent is in the inventor(s), and no assignment of the patent has been made.</p> <p>One of boxes 1 or 2 above must be checked.</p> <p>The written consent of all assignees owning an undivided interest in the original patent is included in this application for reissue.</p>		
Signature 	Date 10/16/98	
Typed or printed name David Morrow		
The assignee owning an undivided interest in said original patent is <u>Warrior Lacrosse, Inc.</u> , and the assignee consents to the accompanying application for reissue.		
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application, any patent issued thereon, or any patent to which this declaration is directed.		
Name of assignee Warrior Lacrosse, Inc.		
Signature of person signing for assignee 	Date 10/16/98	
Typed or printed name and title of person signing for assignee David Morrow		

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In Re Application of

David Morrow et al.

Serial No. 09/123,925

Filed: July 27, 1998

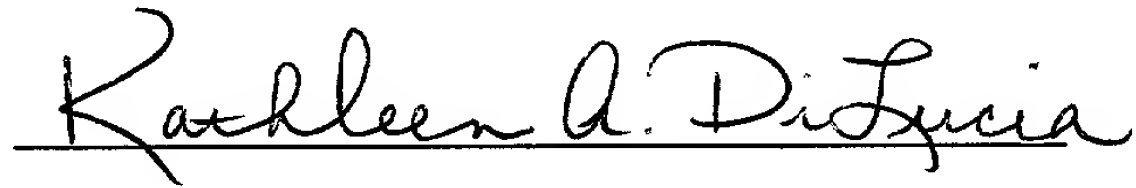
For: SCOOPED LACROSSE HEAD

Attorney Docket No: WARR 0127 R

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Date of Deposit: 10-19-98

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. 1.10 on the date indicated above and is addressed to the Asst. Commissioner for Patents, Washington, D.C. 20231.



**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

This Preliminary Amendment is being submitted in connection with the above-identified reissue application. A Preliminary Amendment was previously submitted with the application when it was filed to correct the inadvertent failure to claim priority to its prior co-pending application design patent application. However, the amendments made to the application in the Preliminary Amendment have been resubmitted with this Amendment.

Please amend the above-identified application as follows:

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**In The Claims:**

Kindly add the following additional claims.

58. A lacrosse head, comprising:

an open frame having a base with a concave interior surface defining a ball rest, a pair of sidewalls diverging from said base and a lip interconnecting said sidewalls remotely of said base;

means carried by said frame for securing a lacrosse net along a back side of said frame, leaving an opposing front side of said frame open for receiving lacrosse balls; and

a projection extending exteriorly from said base for attachment of a handle so as to define a handle/head axis, said front side of said frame at said base adjacent to said attachment means defining a plane parallel to said axis;

said front side of said sidewalls curving away from said plane from said base toward said lip so as to impart a curved geometry when viewed in side elevation.

59. The head set forth in claim 58 wherein said back side of said sidewalls curves away from said plane from said base toward said lip so as to impart a curved geometry when viewed in side elevation.

60. The head set forth in claim 59 wherein said front side and said back side of said sidewalls curve back toward said plane toward said lip when viewed in side elevation.

61. The head set forth in claim 59, wherein said front and said back side of said sidewalls each curve at substantially constant radius away from said base toward said lip.

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62. The head set forth in claim 61, wherein said sidewalls are of uniform thickness between said front and back sides thereof for about one-half of the overall length of said sidewalls.

63. The head set forth in claim 58 wherein said lip has an exterior surface remote from said base that defines a ground contact plane at an angle of at least 40° to said axis.

64. The head set forth in claim 58, wherein said base has a concave shoulder at said back side that is recessed with respect to said concave interior surface of said base.

65. The head set forth in claim 64, wherein said net-securing means at said base are disposed in said shoulder.

66. The head set forth in claim 65, wherein said concave interior surface of said base is at an obtuse angle to said axis.

67. The head set forth in claim 66, wherein said shoulder is recessed at least one-quarter of an inch with respect to said curved interior surface of said base.

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68. A head for a lacrosse stick comprising:  
an open frame having a base with a concave interior surface defining a ball rest, a pair of  
sidewalls diverging from said base and a lip interconnecting said sidewalls remotely of said base;  
means carried by said frame for securing a lacrosse net along a back side of said frame, leaving  
the front side of said frame open for receiving a lacrosse ball; and  
a projection extending from said base for attachment of a handle so as to define a handle/head  
axis;  
said base having a front side edge adjacent said projection for defining a plane that is offset  
from and parallel to said handle/head axis;  
at least a portion of said front side of said sidewall being offset from said plane.

69. The head set forth in claim 68 wherein said sidewalls are of uniform thickness between  
said front and back sides thereof for about one-half of the overall length.

70. The head set forth in claim 68 wherein said lip has an exterior surface remote from said  
base that defines a ground contact plane at an angle of at least 40° to said axis.

71. The head set forth in claim 68 wherein said base has a concave shoulder at said back  
side that is recessed with respect to said concave interior surface of said base.

72. The head set forth in claim 72 wherein said net-securing means at said base are  
disposed in said shoulder.

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73. The head set forth in claim 72 wherein said concave interior surface of said base is at an obtuse angle to said axis.

74. The head set forth in claim 73 wherein said shoulder is recessed at least one-quarter of an inch with respect to said curved interior surface of said base.

**In The Specification:**

Please amend the specification as follows:

Kindly insert the following before the Background and Summary of the Invention:

"This application claims priority to Applicants Co-Pending patent application, Serial No. 038,327, which was filed on May 3, 1995, and entitled "LACROSSE HEAD."


**REMARKS**

Claims 1 through 68 are currently pending in this application. Claims 1 through 57 have not been amended and Applicants submit that they are still in a condition for allowance. Claims 58 through 74 have been newly added to clarify what Applicants contend is their invention. No new matter has been added by their inclusion. Applicants submit that the newly added claims are also patentable over the prior art of record and are in a condition for allowance. Accordingly, a notice of allowance as to all claims is respectfully solicited.

Applicants are also filing a Response to the Notice of Missing Parts concurrently herewith as well as the drawings. Additionally, newly executed Reissue declarations and filing papers are being submitted herewith.

Respectfully submitted,

BROOKS &amp; KUSHMAN



**Mark A. Cantor**  
**Registration No. 30,614**  
**1000 Town Center, 22<sup>nd</sup> Fl.**  
**Southfield, MI 48075**  
**(248) 358-4400**

Date: October 19, 1998

[illegible]

1  
SCOOPED LACROSSE HEAD

The present invention relates to lacrosse sticks, and more particularly to a lacrosse stick head having a curved or scooped configuration and other improvements that facilitate play.

CROSS-REFERENCE TO RELATED  
APPLICATIONS

This application claims priority to Applicants co-pending patent application, Serial No. 038,327, which was filed on May 3, 1995 and entitled "LACROSSE HEAD."

BACKGROUND AND SUMMARY OF THE  
INVENTION

Lacrosse heads of current design typically take the form of an open frame having a base with a concave interior surface that defines a ball rest, a pair of sidewalls that diverge from the base, and a lip that interconnects the sidewalls remotely of the base. Openings or other means are carried by the frame for securing a lacrosse net around the back side of the frame, leaving the opposing front side of the frame open for receiving lacrosse balls. A socket or other means exteriorly projects from the base of the frame for attachment to a handle. The handle and attachment socket define a handle/head axis, which typically although not necessarily forms the central axis and/or an axis of lateral symmetry of the head. All or at least a major portion of the front side of the head is conventionally disposed in a plane parallel to the handle/head axis.

Although lacrosse heads of the described character have enjoyed substantial acceptance and success in the marketplace, improvements remain desirable. It is a general object of the present invention to provide a lacrosse head of the described character that possesses a radically new curved scoop-like design that greatly facilitates play and gives players a decided advantage as compared with heads of conventional construction. Another and more specific object of the present invention is to provide a lacrosse head of the described character that is particularly designed and configured to enable players to dominate ground balls. A further object of the present invention is to provide a lacrosse head of the described character that is specifically designed to direct a lacrosse ball to the pocket or "sweet spot" of the head, and to improve player control during one-handed cradling of the ball at the ball rest. Another object of the present invention is to provide a lacrosse head that improves both player "feel" and ball velocity during cradling, passing or shooting. Yet another object of the present invention is to provide a lacrosse head that incorporates one or more of the aforementioned objectives and advantages while at the same time being entirely within NCAA and other applicable regulations and specifications.

A lacrosse head in accordance with a first aspect or feature of the present invention comprises an open frame construction of the general character described above in which the front side of the frame at the base, adjacent to the socket or other means for attachment to the handle, defines a base plane parallel to the head/handle axis. However, contrary to conventional designs, neither the front sides nor the back sides of the frame sidewalls lie in or are parallel to such base plane. Rather, both the front sides and the back sides of the frame sidewalls curve away from the base plane in the direction of the frame back side from the base toward the lip, and then back toward the base plane so as to impart a curved scoop-like geometry to the head when viewed in side elevation. In the preferred embodiment of the invention, both the front side and the back side of the head have maximum spacing or distance from the base plane at about the midpoint of the sidewalls between the base and the lip.

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Both the front sides and the back sides of the frame sidewalls curve at substantially constant radii throughout at least one-half of their lengths, and preferably throughout about three-quarters of their lengths, between the base and the lip. Curvature of the sidewalls and lengths of the sidewalls are such that the back sides of the sidewalls return at the lip to a spacing or distance from the base plane equal to or less than spacing of such back side from the plane adjacent to the base. The sidewalls of the lacrosse head in the preferred embodiment of the invention have a substantially constant thickness, measured in a direction perpendicular to the base plane, throughout at least one-half of their lengths, and preferably throughout at least about three-quarters of their lengths, between the base and the lip.

The scooped lacrosse head embodying this first feature or aspect of the invention possesses numerous advantages over conventional head constructions in which the front side of the frame is disposed essentially or entirely in a plane. The curved sidewalls of the present invention naturally channel the lacrosse ball into the "sweet spot" or pocket of the net. Further, the net pocket may be of deeper construction than with conventional heads, while maintaining a sidewall thickness of no more than two inches as required by applicable NCAA specifications. Moreover, the arched scoop-like construction of the head, and the consequent scooped construction of the net attached to the head, provides a greater distance for the ball to travel in the net during a throwing motion, thereby improving both ball speed and "feel," again while maintaining an overall head length within applicable NCAA specifications.

In accordance with another important feature of the present invention, which may be employed either separately from or more preferably in combination with other aspects of the invention, the lip that interconnects the head sidewalls remotely of the frame base has an exterior surface—i.e., a surface remote from the ball stop at the frame base—that defines a ground contact plane—i.e., a plane of contact with the ground (assuming that the ground is flat) at the centerline of the head—at an angle of at least  $40^\circ$  to the head/handle axis. That is, when the forward outside surface of the lip is held flat against the ground to scoop a ball, the handle is at an angle of at least  $40^\circ$  to the ground. This exterior lip surface angle, particularly when combined with the preferred scoop-like configuration of the head as discussed above, greatly facilitates control of ground balls because the stick and head may be held at a natural angle for retrieving ground balls while the front lip is scooped beneath the ball without interrupting play or player motion. Further, the geometry of the head, coupled with the preferred molded nylon construction of the head, allows the head to flex so as to improve contact between the lip and ground during use, yielding even greater ground contact and ground ball dominance.

In accordance with a third important aspect of the present invention, which again may be implemented either separately from or more preferably in combination with other aspects of the invention, the base of the frame that defines the ball rest has a concave shoulder at the back side of the base that is recessed with respect to the concave interior surface of the base, with the net-securing apertures or other means at the base being disposed in such shoulder. This shoulder provides two distinct advantages over conventional ball rest constructions. First, the knots or other means that secure the net to the frame are recessed by the shoulder beneath the ball rest, and beneath the foam rubber ball stop that is conventionally secured to the ball rest. Thus, the net-securing knots at the frame base are not abraded by balls that abut or are carried on the ball rest and ball stop. Second, the recessed shoulder allows the ball to rest within the net

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pocket at a position below the arcuate plane of the ball rest when the head is held perpendicular to the ground. This feature provides improved ball control for one-handed cradling, while remaining within applicable NCAA regulations which require that the ball fall freely from the head when the head is held in inverted horizontal orientation. In the preferred embodiment of the invention, the arcuate ball-rest surface is on a conical surface of revolution at an angle of  $91^\circ$  to the head/handle axis, which further enhances the natural action of the head to hold the ball against the net during one-handed vertical cradling.

#### BRIEF DESCRIPTION OF THE DRAWINGS

The invention, together with additional objects, features and advantages thereof, will be best understood from the following description, the appended claims and the accompanying drawings in which:

FIG. 1 is a top plan view of a lacrosse stick incorporating an improved head in accordance with a presently preferred embodiment of the invention;

FIG. 2 is a side elevational view of the lacrosse stick illustrated in FIG. 1;

FIG. 3 is an end elevational view of the lacrosse stick illustrated in FIGS. 1 and 2;

FIG. 4 is a plan view of a lacrosse head in accordance with a presently preferred embodiment of the invention;

FIG. 5 is a side elevational view of the lacrosse head illustrated in FIG. 4;

FIG. 6 is a sectional view the lacrosse head taken substantially along the line 6—6 in FIG. 4;

FIG. 7 is a fragmentary sectional view taken substantially along the line 7—7 in FIG. 1;

FIGS. 8 and 9 are schematic views similar to that of FIG. 7 that illustrate one feature of the present invention; and

FIG. 10 is a fragmentary view on an enlarged scale of a portion of the head as illustrated in FIG. 6.

#### DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

FIGS. 1–3 illustrate a lacrosse stick 20 that includes a head 22 in accordance with a presently preferred embodiment of the present invention having a net or pocket 24 secured thereto. The head and net subassembly is in turn secured to a handle 26, which is preferably of hollow titanium construction having a cross section in the form of an irregular octagon. Net 24 may be of any suitable type, such as that disclosed in U.S. Pat. No. D318,509.

Head 22 (FIGS. 1–6) preferably comprises an open one-piece frame of monolithic injection-molded plastic composition such as nylon. Nylon 6 6 is currently preferred. Head frame 22 has a base 28 with a concave interior surface 30 that defines a ball rest. A pair of sidewalls 32, 34 diverge from base 28, and are interconnected by an arcuate lip 36 at the ends thereof remote from base 28. Sidewalls 32, 34 are of diverging hourglass-like construction in plan view (FIGS. 1 and 4), being interiorly convex for about one-half of their lengths adjacent to base 28, and interiorly concave for about one-half of their lengths adjacent to lip 36. A series of apertures 38 is disposed entirely around frame 22 along a back side thereof for securing net 24 to frame 22. A socket 40 exteriorly projects from frame base 28 for receiving handle 26 (FIGS. 1–2 and 7) and securing head 22 to handle 26 by means of a screw 41 (FIG. 7) or other suitable means. Handle 26 and socket 40 thus define a handle/head axis 42

(FIGS. 4, 6, 7 and 10). In the illustrated embodiment of the invention, axis 42 defines the lateral centerline and the lateral axis of symmetry between the opposing sides of the head, which is to say that sidewalls 32, 34 are mirror images of each other, as are the laterally opposed portions of lip 36 and base 28. A pair of ribs 44 integrally extend from associated sidewalls 32, 34 to the end of socket 40 remote from base 28 for strengthening the socket/frame interconnection.

The front side edge 46 of that portion of base 28 immediately adjacent to socket 40 defines a plane 48 (FIG. 6) that is offset from but parallel to handle/head axis 42. As noted above, lacrosse handles of conventional construction typically have all or a major portion of frame front side edge 46 disposed in plane 48. However, contrary to such conventional constructions, head 22 of the present invention incorporates both a front side edge 46 and a back side edge 50 that curve between base 28 and lip 36 first away from plane 48 in the direction of back side edge 50, and then back toward plane 48. Front side edge 46 crosses plane 48 at 56, and then reverses curvature toward lip 36. Back edge 50 is convex (as viewed in FIG. 6) until blending with lip 36. Thus, edges 46, 50 taper toward each other and merge into lip 36. Both sidewalls 32, 34 are preferably of uniform thickness 52 for at least one-half, and preferably about three-quarters, of their respective lengths. Thickness 52 preferably is not more than two inches, as required by applicable NCAA specifications. In the region of such uniform thickness 52, front side edges 46 of sidewalls 32, 34 have a radius of curvature 54 (FIG. 6) of about 9.86 inches. After front side edge 46 crosses plane 48 at about point 56 (FIG. 6), front side edge 46 has a reverse radius of curvature 58 of about 5.05 inches. From about such crossing of front side edge 46 of plane 48 at point 56, thickness of sidewalls 32, 34 decreases uniformly to a minimum thickness at lip 36.

At lip 36 (FIGS. 6 and 10) there are defined a front lip outside surface 60, a back lip outside surface 62 at an angle to surface 60, and an inside lip surface 64 that is smooth and continuous from front to back and side to side of lip 36. As shown in FIG. 10, surfaces 60, 62 define at the centerline of the head a ground contact plane 80. This plane 80 is the plane of contact of lip 36 with the ground (assuming that the ground is flat) when the lip is held flat against the ground to scoop a ball. In accordance with this feature of the invention, the angle 82 (FIG. 10) between plane 80 and head/handle axis 42, and thus the angle of the handle to the ground during scooping, is at least 40°, but not more than 65°. The presently preferred angle 82 is 45°. The angle of surface 60 with respect to axis 42 in the preferred embodiment of the invention is around 60°, and the angle of surface 62 with respect to axis 42 is around 45°. These surfaces are angled with respect to each other to provide a slightly thickened exterior rib around the lip for added strength. The angle of surface 64 with respect to axis 42 is at least 40°, and preferably about 47°. The inside edge of lip 36 has a uniform radius of curvature 66 (FIG. 4) of about 5.7 inches in the preferred embodiment of the invention, and the outside edge of lip 36 has a uniform radius of curvature 68 of about 4.2 inches.

Base 28 of frame 24 has a concave shoulder 70 at the back side thereof, which is recessed with respect to base ball-rest surface 30. As best seen in FIG. 6, net attachment apertures 38 at base 28 are disposed in recessed shoulder 70. In this way the net strings and knots are recessed below surface 30, and are protected from abutment and abrasion by the lacrosse balls. Surface 30 is at a 1° back angle 72 (FIG. 7) with respect to perpendicular to axis 42, which is to say that



surface 30 is at an angle of  $91^\circ$  with respect to axis 42. In assembly, a ball-stop pad 74 (FIGS 1 and 7) of foam rubber or the like is secured to ball-rest surface 30. In addition to protecting the net from abrasion as described above, recessed shoulder 70, particularly combined with taper angle 72, greatly facilitates ball control during one-handed cradling. As shown in FIG 8, for a given net pocket angle 76, recessed shoulder 70 allows the lacrosse ball 78 to nest more deeply in the pocket of net 26 than in the case of prior art constructions of the type illustrated in FIG. 9 without the recessed shoulder. In the preferred embodiment of the invention illustrated in the drawings, shoulder 70 is recessed 84 (in a direction parallel to axis 42) approximately 0.25 inches (0.25 plus or minus 0.04 inches) from ball-rest surface 30. Width 86 of shoulder 70 is preferably about 0.5 inches (+0.0, -0.01 inches), with the total thickness of the head including shoulder 70 being not more than two inches.

We claim:

1. A lacrosse head that comprises:

an open frame having a base with a concave interior surface defining a ball rest, a pair of sidewalls diverging from said base and a lip interconnecting said sidewalls remotely of said base,

means carried by said frame for securing a lacrosse net along a back side of said frame, leaving an opposing front side of said frame open for receiving lacrosse balls, and

means exteriorly projecting from said base for attachment of a handle so as to define a handle/head axis, said front side of said frame at said base adjacent to said attachment means defining a plane parallel to said axis,

both said front side and said back side of said sidewalls curving away from said plane and then back toward said plane from said base toward said lip so as to impart a curved scoop-like geometry to said head when viewed in side elevation.

2. The head set forth in claim 1 wherein both said front side and said back side of said sidewalls have a maximum spacing from said plane at about the midpoint of said sidewalls between said base and said lip.

3. The head set forth in claim 2 wherein said front side and said back side of said sidewalls each curve at substantially constant radius throughout at least one-half of their lengths between said base and said lip.

4. The head set forth in claim 3 wherein curvature of said sidewalls and length of said sidewalls are such that said back sides of said sidewalls return at said lip to a spacing from said plane equal to or less than spacing of said back sides from said plane adjacent to said base.

5. The head set forth in claim 4 wherein thickness of said sidewalls between said front and back sides thereof does not exceed two inches.

6. The head set forth in claim 3 wherein said substantially constant radius is about 9.86 inches.

7. The head set forth in claim 3 wherein said sidewalls are of uniform thickness between said front and back sides thereof for at least about one-half of the overall length of said sidewalls.

8. The head as set forth in claim 7 wherein said sidewalls are of uniform thickness between said front and back sides for about three-quarters of the overall length of said sidewalls.

9. The head set forth in claim 1 wherein said lip has an exterior surface remote from said base that defines a ground contact plane at an angle of at least  $40^\circ$  to said axis.

10. The head set forth in claim 9 wherein said ground contact plane is at an angle of not greater than  $65^\circ$  to said axis.

11. The head set forth in claim 10 wherein said ground contact plane is at an angle of  $45^\circ$  to said axis.

12. The head set forth in claim 11 wherein said lip has an interior surface that slopes from said back side to said front side at an angle of  $47^\circ$  to said axis.

13. The head set forth in claim 9 wherein said lip is of curved construction outwardly of said handle between said sidewalls.

14. The head set forth in claim 13 wherein said lip has a substantially uniform radius of curvature between said sidewalls.

15. The head set forth in claim 14 wherein radius of curvature of said lip at said back side of said lip is greater than radius of curvature of said lip at said front side of said lip.

16. The head set forth in claim 15 wherein said radius of curvature of said lip at said front side of said lip is at least four inches.

17. The head set forth in claim 1 wherein said concave interior surface of said base is at an obtuse angle to said axis.

18. The head set forth in claim 1 wherein said base has a concave shoulder at said back side that is recessed with respect to said concave interior surface of said base.

19. The head set forth in claim 18 wherein said net-securing means at said base are disposed in said shoulder.

20. The head set forth in claim 19 wherein said concave interior surface of said base is at an obtuse angle to said axis.

21. The head set forth in claim 20 wherein said obtuse angle is about  $91^\circ$ .

22. The head set forth in claim 21 wherein said shoulder is recessed more than one-quarter of an inch with respect to said curved interior surface of said base.

23. The head set forth in claim 1 wherein said handle-attachment means comprises a hollow socket projecting from said base for receiving the handle and strengthening ribs integral with said frame extending from said sidewalls to an end of said socket remote from said base.

24. The head set forth in claim 1 wherein said sidewalls are interiorly convex for about one-half of their lengths adjacent to said base and interiorly concave for about one-half of their lengths adjacent to said lip.

25. A lacrosse head that comprises:  
 an open frame having a base with a concave interior surface defining a ball rest, a pair of sidewalls diverging from said base and a lip interconnecting said sidewalls remotely of said base,  
 means carried by said frame for securing a lacrosse net along a back side of said frame, leaving the front side of said frame open for receiving a lacrosse ball, and  
 means exteriorly projecting from said base for attachment of a handle so as to define a handle/head axis,  
 said lip having an exterior surface remote from said base that defines a ground contact plane at an angle of at least  $40^\circ$  to said axis, said front side of said frame at said base adjacent to said attachment means defining a plane parallel to said axis, both said front side and said back side of said sidewalls curving away from said plane and then back toward said plane from said base toward said lip so as to impart a curved scoop-like geometry to said head when viewed in side elevation.

26. The head set forth in claim 25 wherein said ground contact plane is at an angle of not greater than  $65^\circ$  to said axis.

27. The head set forth in claim 26 wherein said ground contact plane is at an angle of  $45^\circ$  to said axis.

28. The head set forth in claim 25 wherein said lip has an interior surface that slopes from said back side to said front side at an angle of  $47^\circ$  to said axis.

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**29** The head set forth in claim **25** wherein said lip is of curved construction outwardly of said handle between said sidewalls

**30** The head set forth in claim **29** wherein said lip has a substantially uniform radius of curvature between said sidewalls.

**31** The head set forth in claim **30** wherein radius of curvature of said lip at said back side is greater than radius of curvature of said lip at said front side.

**32** The head set forth in claim **31** wherein said radius of curvature of said lip at said front side is at least four inches.

**33** The head set forth in claim **25** wherein both said front side and said back side of said sidewalls have a maximum spacing from said plane at about the midpoint of said sidewalls between said base and said lip.

**34** The head set forth in claim **33** wherein said front side and said back side of said sidewalls each curve at substantially constant radius throughout at least one-half of their lengths between said base and said lip.

**35** The head set forth in claim **34** wherein curvature of said sidewalls and lengths of said sidewalls are such that said back sides of said sidewalls return at said lip to a spacing from said plane equal to or less than spacing of said back sides from said plane adjacent to said base.

**36** The head set forth in claim **35** wherein said sidewalls are of uniform thickness between said front and back sides thereof for at least about one-half of the overall length of said sidewalls.

**37** The head set forth in claim **36** wherein said sidewalls are of uniform thickness between said front and back sides for about three-quarters of the overall length of said sidewalls.

**38** The head set forth in claim **25** wherein said base has a concave shoulder at said back side that is recessed with respect to said concave interior surface of said base.

**39** The head set forth in claim **38** wherein said net-securing means at said base are disposed in said shoulder.

**40** The head set forth in claim **39** wherein said concave interior surface of said base is at an obtuse angle to said axis.

**41** The head set forth in claim **40** wherein said obtuse angle is about  $91^\circ$ .

**42** A lacrosse head that comprises:

an open frame having a base with a concave interior surface defining a ball rest, a pair of sidewalls diverging from said base and a lip interconnecting said sidewalls remotely of said base,

means carried by said frame for securing a lacrosse net along a back side of said frame, leaving the front side of said frame open for receiving lacrosse balls, and

means exteriorly projecting from said base for attachment of a handle so as to define a handle/head axis,

said base having a concave shoulder at said back side that is recessed with respect to said concave interior surface

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of said base, said net-securing means at said base being disposed in said shoulder.

43. The head set forth in claim 42 wherein said concave interior surface of said base is at an obtuse angle to said axis.

44. The head set forth in claim 43 wherein said obtuse angle is about  $91^\circ$ .

45. The head set forth in claim 44 wherein said shoulder is recessed more than one-quarter of an inch with respect to said curved interior surface of said base.

46. The head set forth in claim 42 wherein said front side of said frame at said base adjacent to said attachment means defines a plane parallel to said axis, and wherein both said front side and said back side of said sidewalls curve away from said plane and then back toward said plane from said base toward said lip so as to impart a curved scoop-like geometry to said head when viewed in side elevation.

47. The head set forth in claim 46 wherein both said front side and said back side of said sidewalls have a maximum-spacing from said plane at about the midpoint of said sidewalls between said base and said lip.

48. The head set forth in claim 47 wherein said front side and said back side of said sidewalls each curve at substantially constant radius throughout at least one-half of their lengths between said base and said lip.

49. The head set forth in claim 48 wherein curvature of said sidewalls and length of said sidewalls are such that said back side of said sidewalls returns at said lip to a spacing from said plane equal to or less than spacing of said back side from said plane adjacent to said base.

50. The head set forth in claim 42 wherein said lip has an exterior surface remote from said base that defines a ground contact plane at an angle of at least  $40^\circ$  to said axis.

51. The head set forth in claim 50 wherein said ground contact plane is at an angle of not greater than  $65^\circ$  to said axis.

52. The head set forth in claim 51 wherein said ground contact plane is at an angle of  $45^\circ$  to said axis.

53. The head set forth in claim 52 wherein said lip has an interior surface that slopes from said back side to said front side at an angle of  $47^\circ$  to said axis.

54. The head set forth in claim 50 wherein said lip is of curved construction outwardly of said length between said sidewalls.

55. The head set forth in claim 54 wherein said lip has a substantially uniform radius of curvature between said sidewalls.

56. The head set forth in claim 55 wherein said radius of curvature of said lip at said back side is greater than radius of curvature of said lip at said front side.

57. The head set forth in claim 56 wherein said radius of curvature of said lip at said front side is at least four inches.

58. A lacrosse head, comprising:  
an open frame having a base with a concave interior surface defining a ball rest, a pair of sidewalls diverging from said base and a lip interconnecting said sidewalls remotely of said base;

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means carried by said frame for securing a lacrosse net along a back side of said frame, leaving an opposing front side of said frame open for receiving lacrosse balls; and

a projection extending exteriorly from said base for attachment of a handle so as to define a handle/head axis, said front side of said frame at said base adjacent to said attachment means defining a plane parallel to said axis;

said front side of said sidewalls curving away from said plane from said base toward said lip so as to impart a curved geometry when viewed in side elevation.

59. The head set forth in claim 58 wherein said back side of said sidewalls curves away from said plane from said base toward said lip so as to impart a curved geometry when viewed in side elevation.

60. The head set forth in claim 59 wherein said front side and said back side of said sidewalls curve back toward said plane toward said lip when viewed in side elevation.

61. The head set forth in claim 59, wherein said front and said back side of said sidewalls each curve at substantially constant radius away from said base toward said lip.

62. The head set forth in claim 61, wherein said sidewalls are of uniform thickness between said front and back sides thereof for about one-half of the overall length of said sidewalls.

63. The head set forth in claim 58 wherein said lip has an exterior surface remote from said base that defines a ground contact plane at an angle of at least 40° to said axis.

64. The head set forth in claim 58, wherein said base has a concave shoulder at said back side that is recessed with respect to said concave interior surface of said base.

65. The head set forth in claim 64, wherein said net-securing means at said base are disposed in said shoulder.

66. The head set forth in claim 65, wherein said concave interior surface of said base is at an obtuse angle to said axis.

67. The head set forth in claim 66, wherein said shoulder is recessed at least one-quarter of an inch with respect to said curved interior surface of said base.

68. A head for a lacrosse stick comprising:  
an open frame having a base with a concave interior surface defining a ball rest, a pair of sidewalls diverging from said base and a lip interconnecting said sidewalls remotely of said base;

means carried by said frame for securing a lacrosse net along a back side of said frame, leaving the front side of said frame open for receiving a lacrosse ball; and

a projection extending from said base for attachment of a handle so as to define a handle/head axis;

said base having a front side edge adjacent said projection for defining a plane that is offset from and parallel to said handle/head axis;

at least a portion of said front side of said sidewall being offset from said plane.

69. The head set forth in claim 68 wherein said sidewalls are of uniform thickness between said front and back sides thereof for about one-half of the overall length.

70. The head set forth in claim 68 wherein said lip has an exterior surface remote from said base that defines a ground contact plane at an angle of at least 40° to said axis.

71. The head set forth in claim 68 wherein said base has a concave shoulder at said back side that is recessed with respect to said concave interior surface of said base.

72. The head set forth in claim 72 wherein said net-securing means at said base are disposed in said shoulder.

73. The head set forth in claim 72 wherein said concave interior surface of said base is at an obtuse angle to said axis.

74. The head set forth in claim 73 wherein said shoulder is recessed at least one-quarter of an inch with respect to said curved interior surface of said base.

\* \* \* \* \*

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FIG. 1



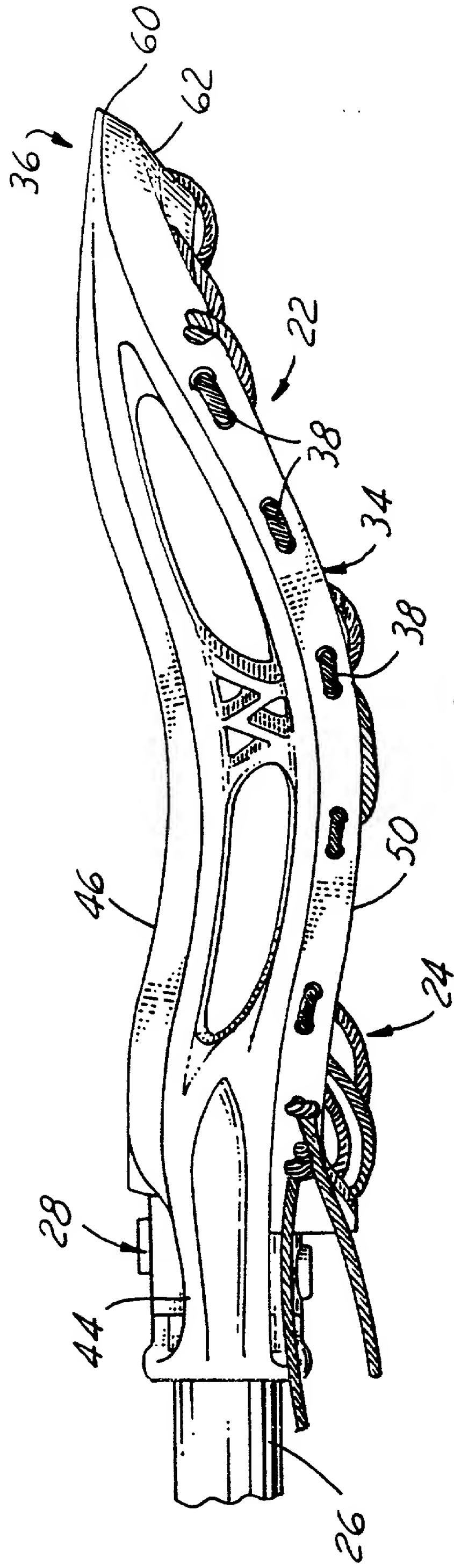


FIG. 2

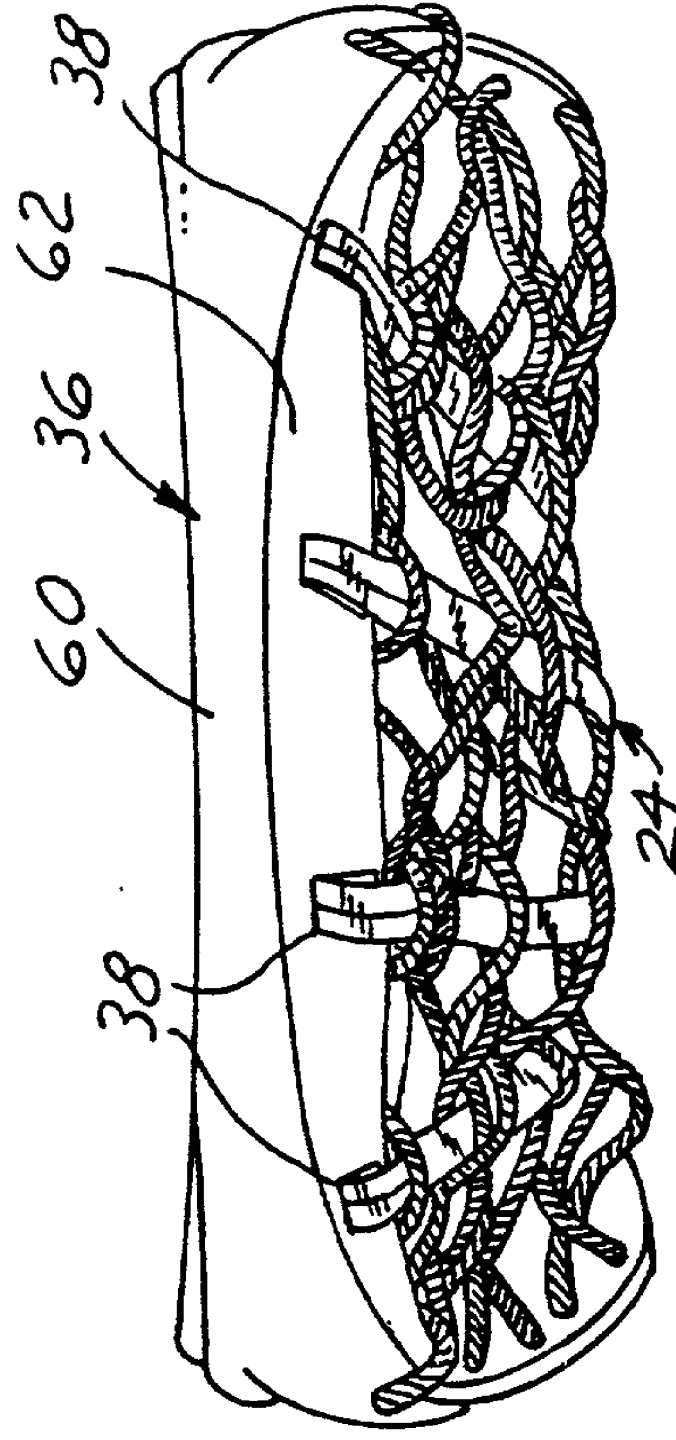


FIG. 3

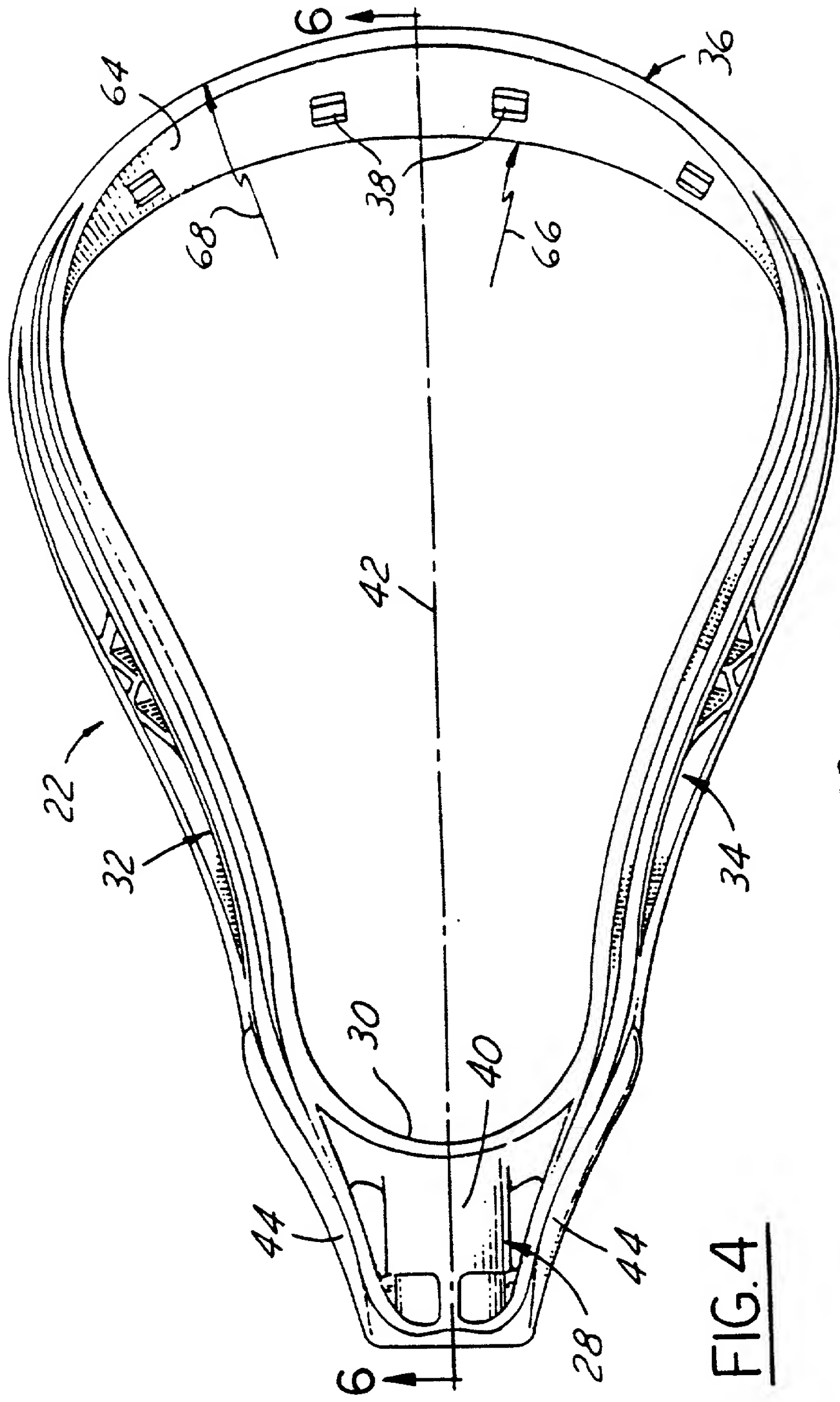


FIG. 4

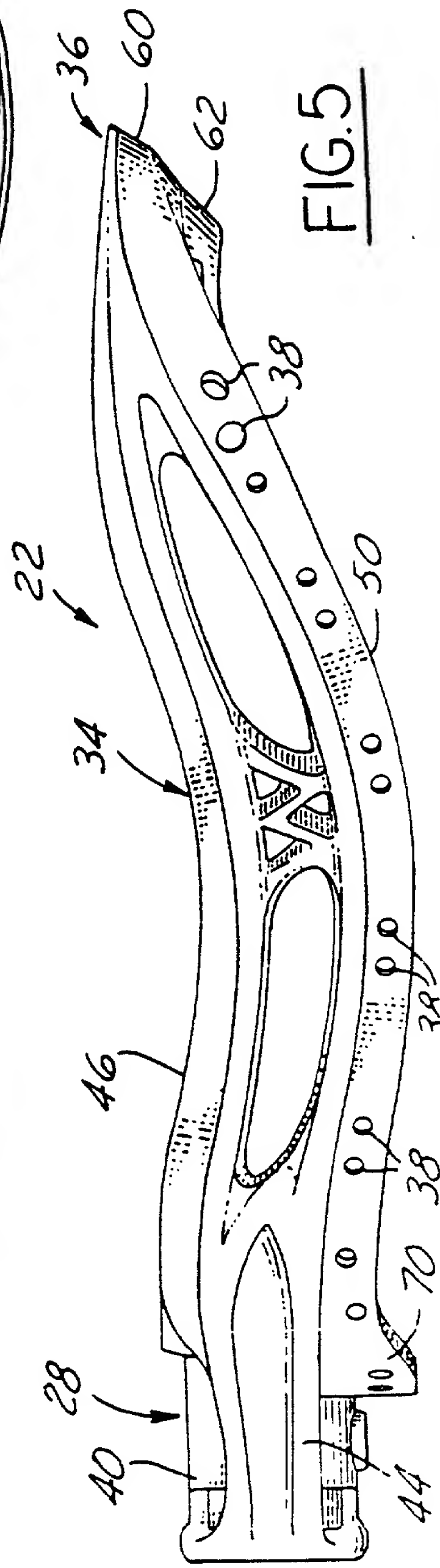


FIG. 5

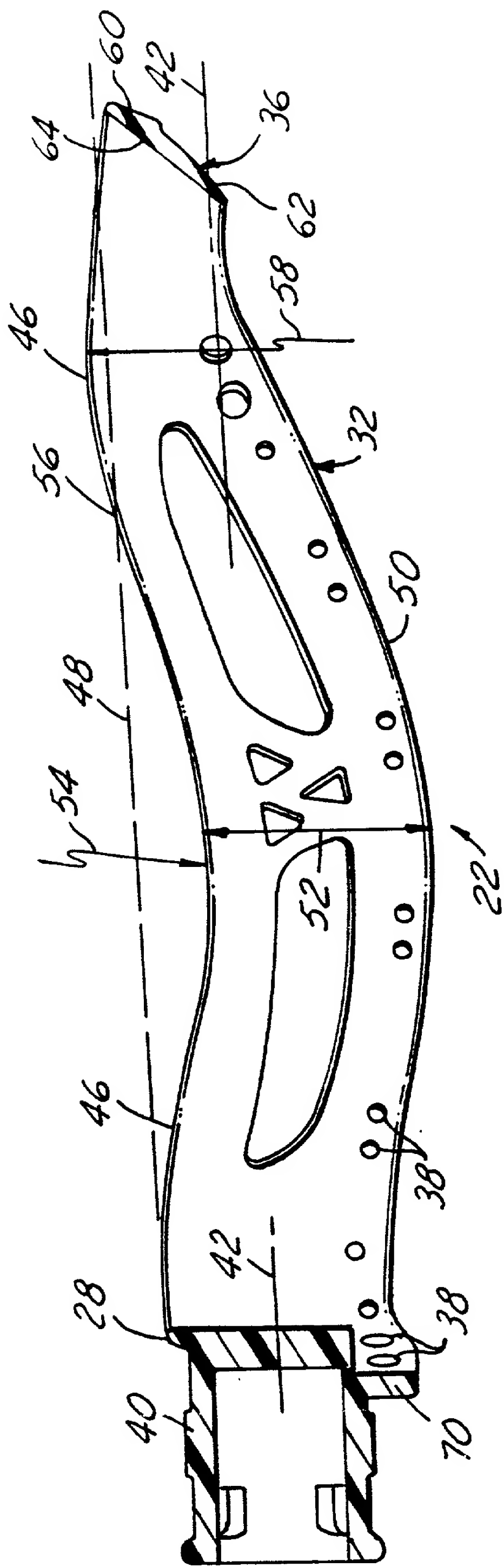


FIG. 6

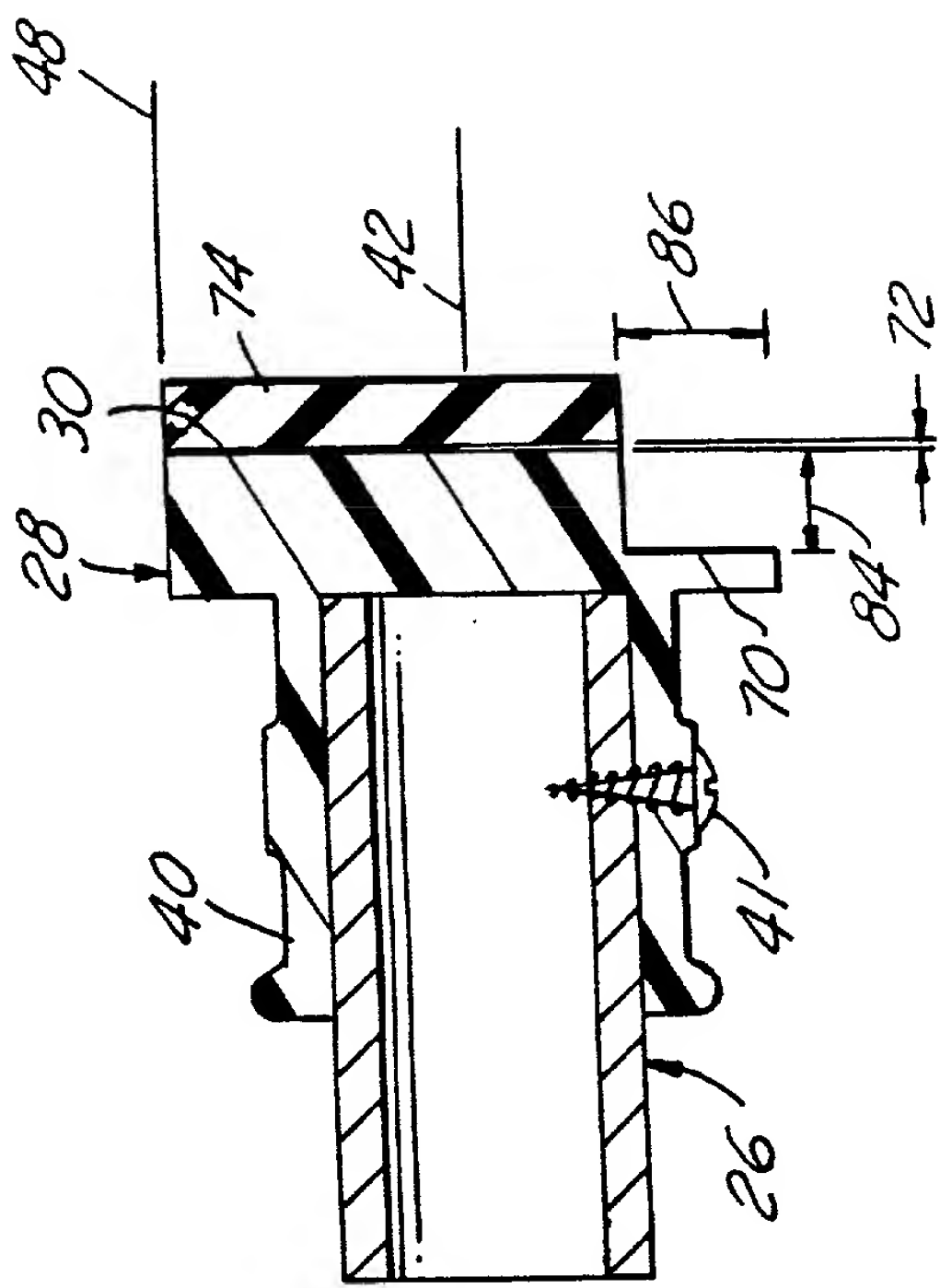


FIG. 7

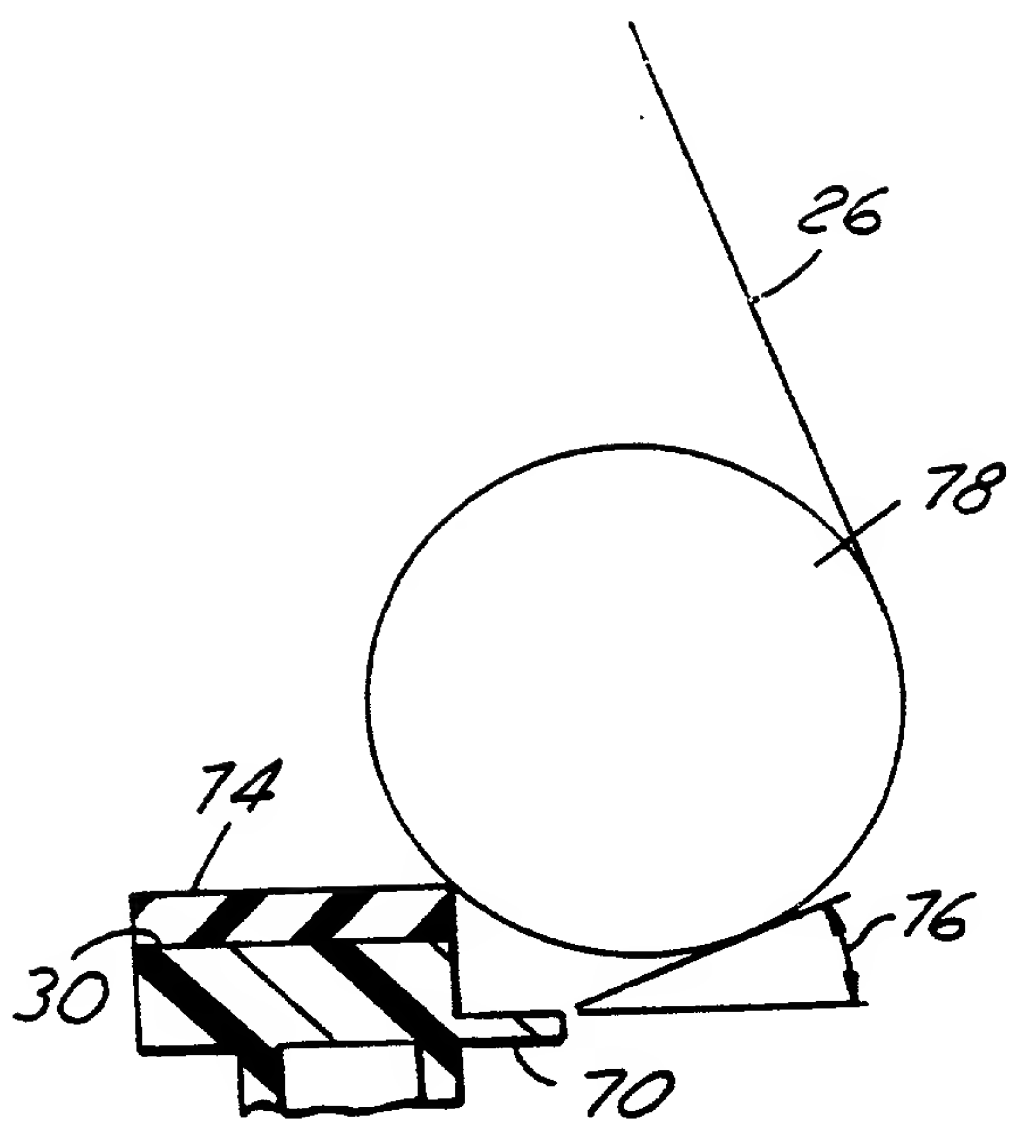
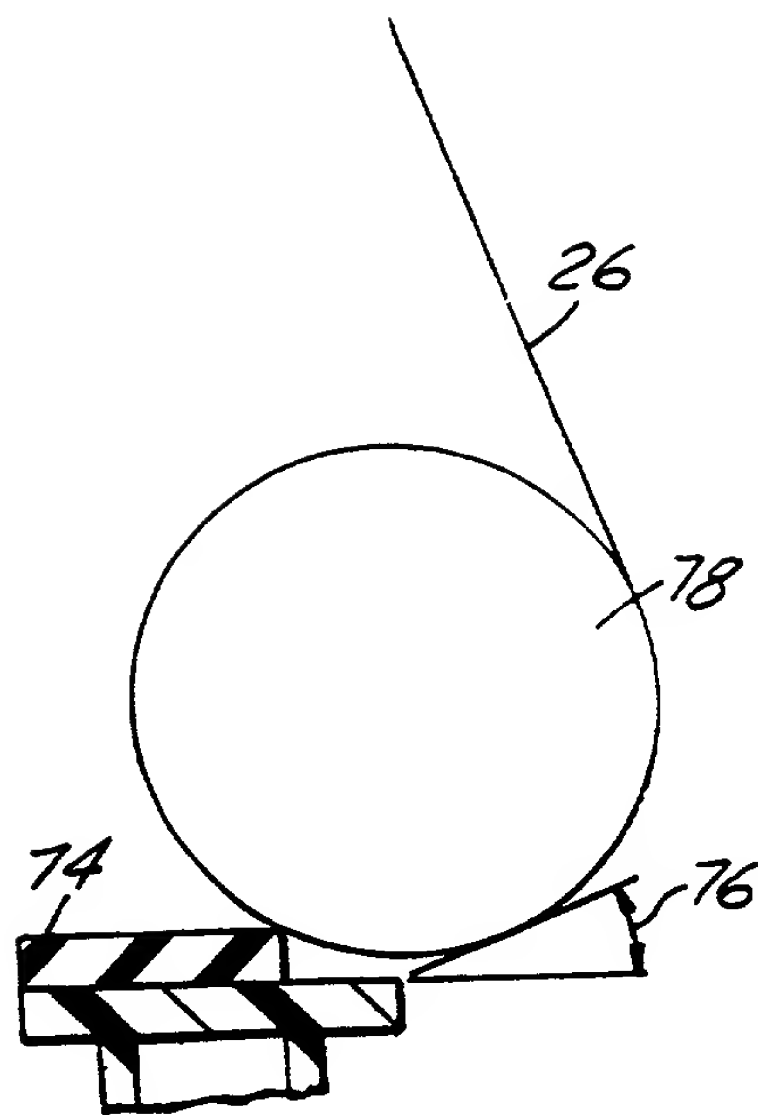


FIG. 8



(PRIOR ART)

FIG. 9

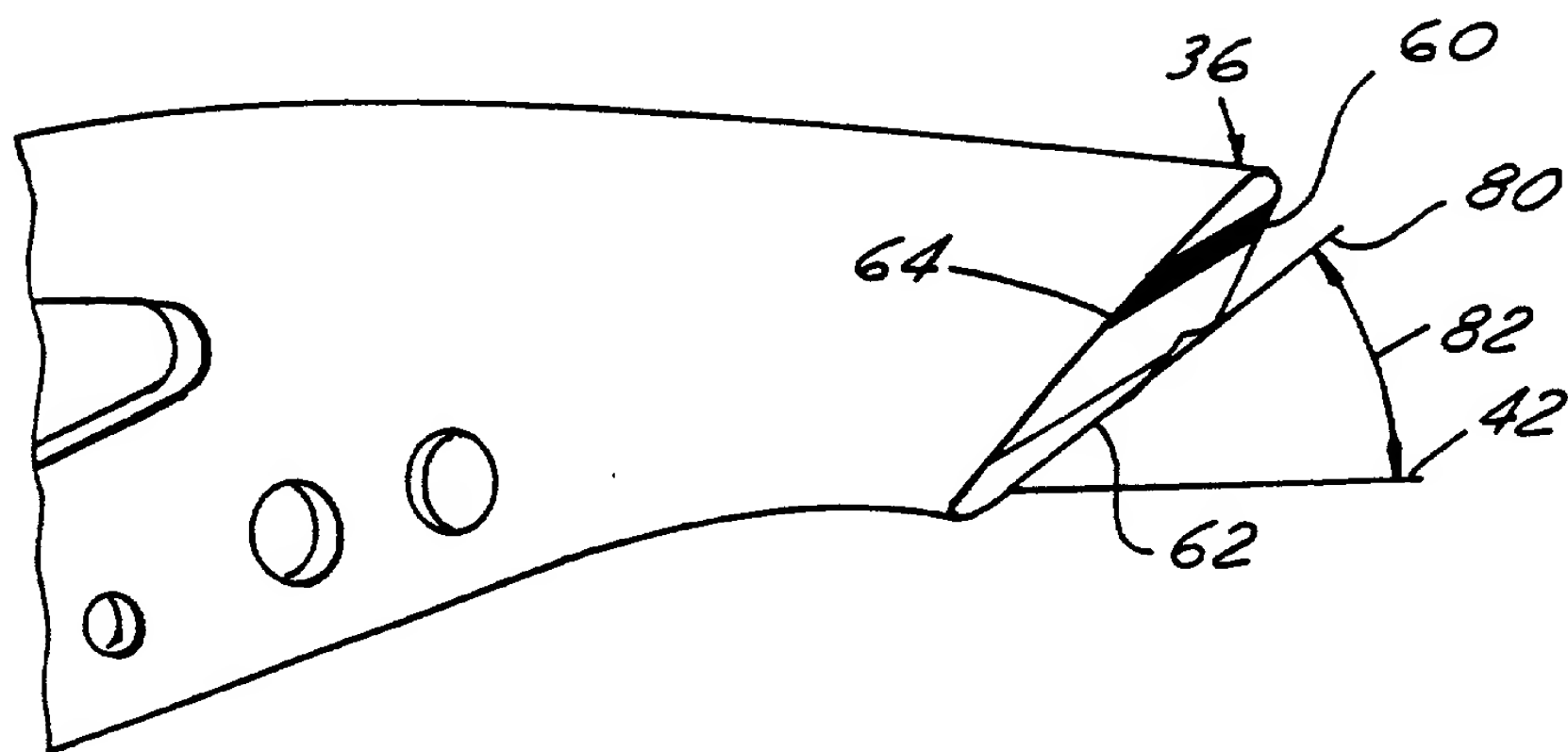


FIG. 10

## REISSUE APPLICATION DECLARATION BY THE INVENTOR

Docket Number (Optional)

WARR 0127 R

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is described and claimed in patent number 5,568,925, granted October 29, 1996, and for which a reissue patent is sought on the invention entitled SCOOPED LACROSSE HEAD

the specification of which

☒ is attached hereto.

☒ was filed on July 27, 1998 as reissue application number 09/ 123,925  
and was amended on \_\_\_\_\_  
(If applicable)

I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I verily believe the original patent to be wholly or partly inoperative or invalid, for the reasons described below. (Check all boxes that apply.)

☐ by reason of a defective specification or drawing.

☒ by reason of the patentee claiming more or less than he had the right to claim in the patent.

☒ by reason of other errors.

At least one error upon which reissue is based is described as follows:

The application that resulted in U.S. Patent No. 5,568,925 inadvertently did not claim priority to Applicants' earlier filed co-pending design patent application. The present patent is entitled to the earlier filing date, under 37 U.S.C. Section 120, of its prior application, Serial No. 038,327 which was filed on May 3, 1995. The prior co-pending U.S. application is entitled "Lacrosse Head" and is directed to the same subject matter as described in the present application.

The patentee of U.S. Patent No. 5,568,925 also claimed less than he had the right to claim in the patent.

[Page 1 of 2]

Burden Hour Statement: This form is estimated to take 0.5 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

(REISSUE APPLICATION DECLARATION BY THE INVENTOR, page 2)		Docket Number (Optional) WARR 0127 R	
<p>All errors corrected in this reissue application arose without any deceptive intention on the part of the applicant. As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.</p>			
Name(s)		Registration Number	
Mark A. Cantor		30,614	
<p>Correspondence Address: Direct all communications about the application to:</p> <div style="display: flex; align-items: center; justify-content: space-between;"> <div style="display: flex; align-items: center;"> <input type="checkbox"/> Customer Number             <div style="border: 1px solid black; width: 150px; height: 20px; margin: 0 10px;"></div> <span>→</span> </div> <div style="border: 1px solid black; padding: 5px; text-align: center;">                 Place Customer Number Bar Code Label here             </div> </div> <p>OR</p> <div style="border: 1px solid black; padding: 5px; width: 150px; margin: 0 auto;">                 Type Customer Number here             </div>			
<input checked="" type="checkbox"/> Firm or Individual Name	Brooks & Kushman		
Address	1000 Town Center		
Address	22nd Floor		
City	Southfield	State	MI
Country	U.S.A.		
Telephone	248-358-4400	Fax	248-358-3351
<p>I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine and imprisonment, or both, under 18 U.S.C. 1001, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this declaration is directed.</p>			
Full name of sole or first inventor (given name, family name)			
David Morrow			
Inventor's signature			
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Full name of second joint inventor (given name, family name)			
Philip Naumburg			
Inventor's signature		Date	
Philip Naumburg		10/14/98	
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Full name of third joint inventor (given name, family name)			
Inventor's signature		Date	
Residence		Citizenship	
Post Office Address			
<input type="checkbox"/> Additional joint inventors are named on separately numbered sheets attached hereto.			